

M.H

PCT

WORLD INTELLECTUAL PROPERTY ORGANIZATION  
International Bureau



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification <sup>6</sup> : <b>A61B 5/02</b>	<b>A1</b>	(11) International Publication Number: <b>WO 00/10453</b>
		(43) International Publication Date: 2 March 2000 (02.03.00)

(21) International Application Number: PCT/US99/19258

(22) International Filing Date: 24 August 1999 (24.08.99)

(30) Priority Data:

60/097,618	24 August 1998 (24.08.98)	US
60/126,339	26 March 1999 (26.03.99)	US

(71)(72) Applicants and Inventors: BARUCH, Martin, C. [US/US]; Empirical Technologies Corporation, P.O. Box 8175, Charlottesville, VA 22906 (US). ADKINS, Charles [US/US]; Empirical Technologies Corporation, P.O. Box 8175, Charlottesville, VA 22906 (US). GERDT, David, W. [US/US]; Empirical Technologies Corporation, P.O. Box 8175, Charlottesville, VA 22906 (US).

(74) Agents: SHAPIRO, Mitchell, W. et al.; Vorys, Sater, Seymour and Pease LLP, 11th floor, 1828 L Street N.W., Washington, D.C. 20036 (US).

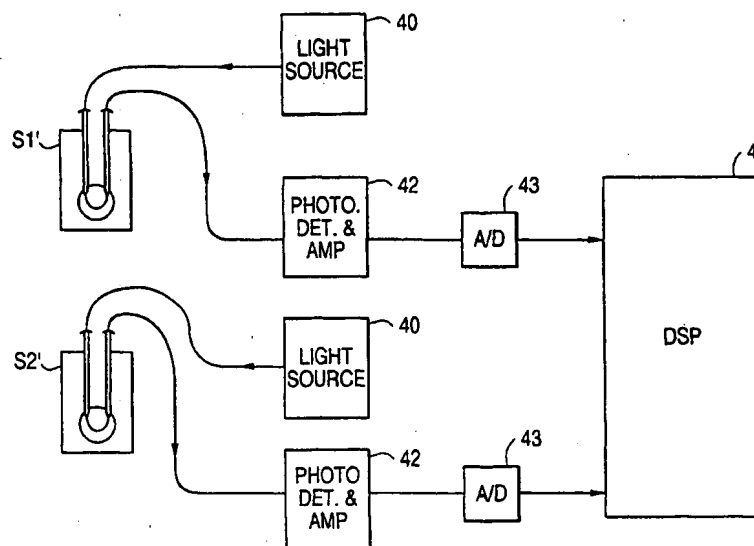
(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

**Published**

*With international search report.*

*Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.*

(54) Title: APPARATUS AND METHOD FOR MEASURING PULSE TRANSIT TIME



(57) Abstract

In a method of measuring pulse transit time of a living subject, first and second pulse wave signals are produced by sensing the pulse at first and second pulse points, respectively, the first and second pulse points being spaced from one another. The first and second pulse wave signals are differentiated, and based on the results, corresponding points of the first and second pulse wave signals are selected (e.g., points of maximum slope). The time delay between the selected points is determined, thus yielding the pulse transit time. A preferred apparatus measures pulse transit time using at least one fiberoptic pulse sensor including a fused-fiber coupling region having at least a portion that can be deflected without putting the coupling region under tension.